CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CEMENT/2016-17 Date: 07.07.2016

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
*NAME OF THE WORK	:	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
*REFERENCE	:	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	04.07.2016
PERIOD OF TESTING	:	04.07.2016 to 07.07.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	150 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	485 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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****

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/SAND-Gradation/2016-17 : 07.07.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. M.S. Venkatesh,**
# 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.

*** Name of Work** : Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.

***REFERENCE** : AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on : 04.07.2016

Date of Testing : 07.07.2016

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	92.61	90-100	90-100	90-100	95-100
2.36	76.87	60-95	75-100	85-100	95-100
1.18	57.02	30-70	55-90	75-100	90-100
600 Micron	28.35	15-34	35-59	60-79	80-100
300 Micron	12.43	5-20	8-30	12-40	15-50
150 Micron	2.58	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/AGG/2016-17 : 07.07.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. M.S. Venkatesh,**
# 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.

*** Name of Work** : Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm)

Sample Received on : 04.07.2016

Date of Testing : 07.07.2016

Total Wt. of Aggregates in gms= **7000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.39	95-100	85-100
20	33.84	30-70	0-20
10	14.06	10-35	0-5
4.75	1.64	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.07/MSV/STEEL/2016-17 18.07.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
Name of the Work	:	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	:	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
Date of Test	:	18.07.2016
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	514	557	13.30	O.K	O.K

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.07/MSV/STEEL/2016-17 18.07.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
Name of the Work	:	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	:	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
Date of Test	:	18.07.2016
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	12	0.89	517	564	13.45	O.K	O.K

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 18.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
* Agency	: **Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
* Name of the work	: Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
* Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 18.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	21.07.2016	18.08.2016	8.125	479.6	21.32
2	21.07.2016	18.08.2016	8.169	492.5	21.89
3	21.07.2016	18.08.2016	8.235	508.3	22.59

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Job No.: CTCE/BBMP/W.No.07/MSV/WMM/Gradation/2016-17 22.07.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Mr. M.S. Venkatesh,**
15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.

Name of Work : Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016

Date of Testing : 22.07.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8500**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	235	235	2.8	97.2	95-100
22.4	2560	2795	32.9	67.1	60-80
11.2	1825	4620	54.4	45.6	40-60
4.75	1085	5705	67.1	32.9	25-40
2.36	950	6655	78.3	21.7	15-30
0.600	850	7505	88.3	11.7	8-22
0.075	750	8255	97.1	2.9	0-8

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Job No.: CTCE/BBMP/W.No.07/MSV/WMM/AIV/2016-17 22.07.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
Name of the Work	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	22.07.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	92	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	22.88	23.47	
	100* (W_2/W_1)%			**23.17**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.07/MSV/WMM/S-T/2016-17 22.07.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
Name of Work	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	22.07.2016

Result : Flakiness Index = **11.38%**

Elongation Index = **13.49%**

Result : Combined Flakiness & Elongation index **24.87%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 22.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
* Agency	: **Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
* Name of the work	: Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
* Sample ID	: Road Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 22.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	25.07.2016	22.08.2016	8.193	477.2	21.21
2	25.07.2016	22.08.2016	8.312	515.7	22.92
3	25.07.2016	22.08.2016	8.274	494.5	21.98

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 22.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer**	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
*** Name of the work**	: Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
*** Sample ID**	: Road Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
*** Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 22.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	25.07.2016	22.08.2016	8.125	486.9	21.64
2	25.07.2016	22.08.2016	8.211	498.6	22.16
3	25.07.2016	22.08.2016	8.169	516.4	22.95

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 25.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
* Agency	: **Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
* Name of the work	: Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
* Sample ID	: Road Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 25.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	28.07.2016	25.08.2016	8.427	489.3	21.75
2	28.07.2016	25.08.2016	8.353	477.8	21.24
3	28.07.2016	25.08.2016	8.218	471.7	20.96

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 25.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. M.S. Venkatesh,**
# 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.

*** Name of the work** : Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016

*** Sample ID** : Road Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28^{th} day

Sample Received on : 25.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	28.07.2016	25.08.2016	8.169	502.6	22.34
2	28.07.2016	25.08.2016	8.369	486.8	21.63
3	28.07.2016	25.08.2016	8.427	506.5	22.51

* Information is furnished by the Customer/Representative

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Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 27.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. M.S. Venkatesh,**
# 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.

*** Name of the work** : Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016

*** Sample ID** : Road Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28^{th} day

Sample Received on : 27.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.07.2016	27.08.2016	8.115	475.6	21.14
2	30.07.2016	27.08.2016	8.137	495.7	22.03
3	30.07.2016	27.08.2016	8.187	512.8	22.79

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Job No.: CTCE/BBMP/W.No.07/MSV/CSR-07/083h/CUBE/2016-17 27.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
* Agency	: **Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
* Name of the work	: Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
* Sample ID	: Road Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 27.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.07.2016	27.08.2016	8.237	471.6	20.96
2	30.07.2016	27.08.2016	8.365	503.2	22.36
3	30.07.2016	27.08.2016	8.219	489.7	21.76

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMP/W.No.07/MSV/SDBC/Bitumen/2016-17 04.08.2016

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
NAME OF THE WORK	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
SAMPLE I/D	Roads in Sanjeevininagar, Ward No. 07.
DATE OF TESTING	04.08.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25.00	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.07/MSV/SDBC/Gradation/2016-17 04.08.2016

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. M.S. Venkatesh,** # 15, 4th Main, 11th Cross, Coffee Board Layout, Hebbal Kempapura, Bangalore - 24.
NAME OF THE WORK	Improvements roads and drains in Sanjeevini Nagar area in Ward No. 07, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/BD/WO/PR/62/2016-17 Dated: 04.07.2016
SAMPLE I/D	Roads in Sanjeevininagar, Ward No. 07.
DATE OF TESTING	04.08.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.98	5.47	5.47	94.53	90-100
4.75	250.74	52.79	58.26	41.74	35-51
2.36	53.15	11.19	69.45	30.55	24-39
1.18	51.14	10.77	80.21	19.79	15-30
0.3	32.68	6.88	87.09	12.91	9-19
0.075	30.25	6.37	93.46	6.54	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	31.73	6.69	6.69	93.31	90-100
4.75	255.94	54.00	60.69	39.31	35-51
2.36	53.24	11.23	71.92	28.08	24-39
1.18	41.58	8.77	80.69	19.31	15-30
0.3	25.69	5.42	86.11	13.89	9-19
0.075	33.17	7.00	93.11	6.89	3-8

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